

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* HISASHI KOBAYASHI  
and KUANG-TSAI WU

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Appeal No. 1998-3055  
Application No. 08/631,591

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ON BRIEF

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Before OWENS, LIEBERMAN, and KRATZ, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

*DECISION ON APPEAL*

This is an appeal from the examiner's final rejection of claim 5, and refusal to allow claims 1-4 as amended after final rejection. These are all of the claims in the application.

*THE INVENTION*

The appellants claim a glass melting apparatus and method. Claims 1 and 5 are illustrative.

1. A glassmelting oxygen-fuel burner apparatus which reduces alkali corrosion comprising:

a glassmelting furnace having a plurality of walls, a crown, a charge end, a batch melting area and a fining area;

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at least two low momentum oxy-fuel burners located in at least one of the walls of the glassmelting furnace, each burner having at least one gas exit port, the lowest point of each gas exit port of each burner having a vertical position that is raised to a height of about 18 inches to about 36 inches above the surface of the glass;

each oxy-fuel burner generating a flame along a path directed towards an opposite vertical wall of the glassmelting furnace; and

said interior intersection of said walls and said crown of said glassmelting furnace being located at a height of between about 5.5 feet and 9 feet above the glassmelting surface.

5. A glassmelting method which reduces alkali corrosion in a glassmelting furnace with oxy-fuel burners comprising:

A) providing glassmaking materials including alkali species into the glassmelting furnace;

B) providing fuel and oxidant into the furnace through the oxy-fuel burners located in a staggered formation in the furnace and having a height of about 18 inches to about 36 inches above the surface of the glass surface;

C) combusting the fuel and oxidant therein to provide heat to the glassmaking materials to form molten glass; and

D) minimizing alkali concentration near the crown by positioning of flue ports below the burner level near the burner or the opposite wall along the path of each burner flame.

#### *THE REFERENCES*

|                              |           |               |
|------------------------------|-----------|---------------|
| Lauwers                      | 5,139,558 | Aug. 18, 1992 |
| Castelain et al. (Castelain) | 5,147,438 | Sep. 15, 1992 |

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#### *THE REJECTIONS*

The claims stand rejected under 35 U.S.C. § 103 as follows:  
claims 1-4 over Castelain, and claim 5 over Lauwers.

#### *OPINION*

We reverse the aforementioned rejections.

##### *Rejection of claims 1-4*

We need to address only claim 1, which is the sole independent claim among claims 1-4.

Claim 1 requires that the lowest point of each gas exit port of each burner has a vertical position that is about 18 to about 30 inches above the glass surface. The appellants place the exit ports at this vertical position because it reduces the gas velocity near the glass surface, thereby lowering the alkali volatilization from the glass bath (specification, pages 6-7).

The examiner argues that the burner height is merely a matter of optimization, the determination of which would not have required undue experimentation (answer, page 3). The examiner, however, has provided no evidence that the burner gas exit port height was known in the art to be a result effective variable and, therefore, a variable which one of ordinary skill in the art would have optimized. *See In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). Moreover, even if the

burner gas exit port height were known to be a result effective variable, the examiner has not established that one of ordinary skill in the art would have optimized it for the reason it was optimized by the appellants, or would have optimized it for any other reason which would have resulted in a height within the range recited in the appellants' claim 1. Alternatively, the examiner has not established that burner gas exit port heights of about 18 to about 36 inches above the glass surface were conventional in the art. The appellants point out in the background of the invention section of their specification (page 3) that placing low momentum oxy-fuel flames at least 12 inches above a glass bath surface reduces volatilization of alkali species from the glass surface. The examiner, however, has not explored on the record whether this information was known in the art at the time of the appellants' invention, and has not relied upon it, if it is prior art.

Regardless, the appellants' claim 1 also requires that the intersection of the walls and the crown of the furnace is between about 5.5 feet and 9 feet above the glass surface. The examiner similarly has not identified any basis for optimization which would have resulted in a height within this range or,

alternatively, has not established that heights within this range were conventional in the art.

The examiner relies upon *In re Japikse*, 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950), wherein the court considered shifting the position of a starting switch to not be a patentable distinction because such a change did not modify the operation of the device. The examiner has not established that changing the burner gas exit port height does not modify the operation of a glass melting furnace. The examiner has merely relied upon a *per se* rule that shifting the location of a part is *prima facie* obvious. As stated by the Federal Circuit in *In re Ochiai*, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995), "reliance on *per se* rules of obviousness is legally incorrect and must cease."

For the above reasons, we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the invention recited in the appellants' claims 1-4. We therefore reverse the rejection of these claims.

*Rejection of claim 5*

Claim 5 requires that the burners are in a staggered formation and are at a height about 18 to about 36 inches above the glass surface. As discussed above, the examiner has not

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established a *prima facie* case of obviousness of the recited burner height. As for the staggered formation of the burners, the examiner argues, in reliance upon *Japikse*, that it would have been obvious to one of ordinary skill in the art to stagger Lauwers' burners because doing so would not modify the operation of the device (answer, page 4). The examiner, however, has provided no explanation as to why staggering the burners would not modify the operation of the device. Again, the examiner has improperly relied upon a *per se* rule that shifting the location of a part is obvious.

Accordingly, we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the invention recited in claim 5. Consequently, we reverse the rejection of this claim.

## DECISION

The rejections under 35 U.S.C. § 103 of claims 1-4 over Castelain, and claim 5 over Lauwers, are reversed.

*REVERSED*

TERRY J. OWENS )  
Administrative Patent Judge )  
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 ) BOARD OF PATENT

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|-----------------------------|---|---------------|
| PAUL LIEBERMAN              | ) | APPEALS       |
| Administrative Patent Judge | ) | AND           |
|                             | ) | INTERFERENCES |
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| PETER F. KRATZ              | ) |               |
| Administrative Patent Judge | ) |               |

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